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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,354	02/17/2004	Volker Dicken	7390-X04-030	9221

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EXAMINER

HAJNIK, DANIEL F

ART UNIT

PAPER NUMBER

2628

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/781,354	Applicant(s) DICKEN, VOLKER	
	Examiner Daniel F. Hajnik	Art Unit 2628	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 8/9/2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/9/2006 has been entered.

***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 8, 9, 14, and 15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Further, as per claims 8, 9, 14, and 15, the claimed invention is directed to non-statutory subject matter because these claims are directed to a program product, which is a functional descriptive material per se. In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component.

"Functional descriptive material" is nonstatutory when claimed as descriptive material per se.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized (i.e. "a computer

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program product comprising a computer readable medium encoded with computer executable instructions to perform the following steps ...”).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bitter et al. (US Pub 2005/0228250, herein referred to as “Bitter”).

As per claim 1, Bitter teaches the claimed “providing of volumetric data” by teaching of “constructing a 3D volumetric model” (paragraph [0036]).

Bitter teaches the claimed “first voxels belonging to a reference surface, the reference surface being a surface of a body” by teaching of:

The V3D Explorer (20) is a heterogeneous image-processing tool that is used **for viewing selected anatomical organs to evaluate internal abnormalities**” (paragraph [0034])

The 3D model (33) comprises an original CT volume dataset (33a) and a tag volume (33b) which comprising a volumetric dataset comprising a volume of segmentation tags that identify **which voxels are assigned to which segmented components** (paragraph [0039])

Here, the first voxels are the voxels of the abnormality and the reference surface is one surface of a body organ.

Bitter teaches the claimed “determining second voxels” by teaching of:

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The V3D Explorer (20) is a heterogeneous image-processing tool **that is used for viewing selected anatomical organs** to evaluate internal abnormalities (paragraph [0034])

**A Volume Annotation button can be selected to obtain the volume of a component.** The Volume Annotation tool can only be performed on a previously defined component. **Activating the Volume Annotation tool allows the user to click anywhere on a component (255. FIG. 17) and attain its volume,** in cubed millimeters, average and maximum volumes, and the standard deviation (paragraph [0127])

Here, the second voxels can be associated with the body structure (an anatomical organ).

Bitter teaches the claimed “visualizing of the second voxels” by teaching of:

combinations of 2D and **3D views in the image area (93).** The V3D Explorer GUI (90) can display various types of images including, a cross-sectional image, three 2D orthogonal slices (axial, sagittal and coronal) and **a rotatable 3D virtual mode of the organ of interest** (paragraph [0093])

Here, the organ of interest can have second voxels that can be visualized through a 3D virtual mode.

Bitter does not explicitly teach the claimed:

entering a user selected distance by means of user interface means comprising a wheel mouse, an amount of rotation of the wheel of the wheel mouse being indicative of the user selected distance, the user selected distance measured from the surface of the body structure;

because Bitter does not explicitly teach the claimed “an amount of rotation of the wheel of the wheel mouse being indicative of the user selected distance”. However, Bitter suggests the claimed limitation by teaching of:

The V3D Explorer allows a user to: (i) set specific volume rendering parameters; (ii) **perform 2D measurements of linear distances and volumes,** including statistics (such as standard deviation) associated with the measurements; (iii) **provide an accurate assessment of abnormalities;** (paragraph [0044])

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**To measure, the user would place the cursor at the starting point, click the mouse, and drag the mouse to the next point.** As the mouse move, one end point of the line stays fixed and the other moves to create the desired linear measurements.

(paragraph [0122])

Here, the abnormalities can be associated with the surface of the body structure. Based on these teachings, it would have been obvious to modify Bitter to use the claimed limitation of the wheel mouse in order to allow the user to more easily enter a user selected distance using a wheel mouse rather than the click and drag technique used by Bitter. One advantage to the wheel can be to achieve an easier to use interface for the user.

As per claim 2, Bitter teaches the claimed “segmentation of the volumetric data to identify the first voxels” by teaching of:

**The interactive segmentation module generates volume data** to allow display of segmentation results and is interoperable with the measurement module to provide width, height, length, min, max, average, standard deviation, **volume etc of segmented regions**

(paragraph [0130])

Here, the first voxels can be a segmented abnormality, volumetric region.

As per claim 3, Bitter teaches the claimed “distance ... being determined along a direction of projection” by teaching of:

**The V3D Explorer can present the 3D volumetric image in two aspects: Parallel or Perspective.** In the Perspective view the 3D image takes on a more natural appearance because the projections of the lines into the distance will eventually intersect

(paragraph [0119])

As the mouse move, one end point of the line stays fixed and the other moves to create the **desired linear measurements**

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(paragraph [0122])

Here, the distance can be a linear measurement and the distance direction can be the direction of perspective view.

As per claims 4 and 5, Bitter teaches the claimed limitation by teaching of:

Pressing the button 91 activates the linear measurement mode (**which calculates the Euclidian distance** between two points), and the mouse cursor changes shape (paragraph [00122])

Here, the Euclidian distance can be a minimum distance.

As per claim 6, Bitter teaches the claimed “medical image data” by teaching of:

constructing a 3D volumetric model  
(paragraph [0036])

With the V3D Explorer, a user can display 2D images and construct a 3D model of any organ, e.g., liver, lungs, heart, brain colon, etc.  
(paragraph [0034])

As per claim 7, Bitter does not explicitly teach the claimed “microscopy data”. However, Bitter suggests the claimed limitation by teaching of CT, MRI, PET, and SPECT image data (paragraph [0033]). It would have been obvious to one of ordinary skill in the art to modify Bitter to use microscopy data as well because it is a well-recognized and useful image data technique for analysis with medical imaging.

As per claims 8-11, these claims are similar in scope to claims 1, 2, 1, and 2, respectively, and thus are rejected under the same rationale.

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As per claim 12, Bitter teaches the claimed “volume rendering” by teaching of:

The **3D renderer module** is responsible for handling the input, output and manipulation of three-dimensional views of a volumetric dataset (paragraph [0108])

As per claims 13, 15, and 17, Bitter teaches the claimed “body structure is an organ” by teaching of:

The V3D Explorer (20) is a heterogeneous image-processing tool that is used **for viewing selected anatomical organs to evaluate internal abnormalities**” (paragraph [0034])

As per claims 14 and 16, these claims are similar in scope to claim 6, and thus are rejected under the same rationale.

### ***Response to Arguments***

5. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel F. Hajnik whose telephone number is (571) 272-7642. The examiner can normally be reached on Mon-Fri (8:30A-5:00P).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka J. Chauhan can be reached on (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*Daniel Kajuth*      *10/16/06*

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